IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A wavelength division multiplexing passive optical network (WDM-PON) for performing bi-directional communication, the WDM-PON comprising:

at least three remote distribution nodes between a central office and a first optical network unit, including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, wherein the first remote distribution node includes at least one ~~band splitting~~ filter configured to couple a first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, and configured to connect to the second remote distribution node comprising at least two filters coupled to at least two optical network units, wherein each of the first remote distribution node and the second remote distribution node are configured to separate at least one wavelength channel from the first composite optical signal distributed through that remote distribution node, wherein the third remote distribution node comprises a multiplexer/demultiplexer.

2. (Currently Amended) A wavelength division multiplexing passive optical network (WDM-PON) for performing bi-directional communication, the WDM-PON comprising:

at least two remote distribution nodes including a first remote distribution node and a second remote distribution node between a central office and a plurality of optical network units, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node and the second remote distribution node are connected to each other sequentially, wherein the first remote distribution node is configured to couple a first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, and wherein the first remote distribution node includes a series of band splitting filters configured to connect to the second remote distribution node comprising a first multiplexer/demultiplexer and a second multiplexer/demultiplexer coupled to at least two optical network units, wherein each of the first remote distribution node and the second remote distribution node are configured to separate at least one wavelength channel from the first composite optical signal distributed through that remote distribution node~~The WDM-PON of claim 1~~, wherein

the ~~first remote distribution node includes a~~ series of band splitting filters are configured to split the first composite optical signal that includes all of the wavelength channels in a first wavelength band into a first subset of the wavelength channels and a second subset of the wavelength channels.

3. (Currently Amended) The WDM-PON of claim 2, wherein the series of band splitting filters are coupled together to create the second composite optical signal in a second wavelength band by combining a first portion of the wavelength channels in the second wavelength band and a second portion of the wavelength channels in the second wavelength band, wherein the second

composite optical signal ~~travels in the opposite direction of the first composite optical signal and~~ occupies a different wavelength band than the first composite optical signal.

4. (Currently Amended) The WDM-PON of claim [[1]] 2, wherein the ~~second remote distribution node includes a~~ first multiplexer/demultiplexer is configured to receive a first subset of the wavelength channels in the first composite optical signal from the first remote distribution node and to send a first portion of wavelength channels in the second composite optical signal to the first remote distribution node, wherein the second composite optical signal occupies a different wavelength band than the first composite optical signal.

5. (Currently Amended) The WDM-PON of claim 4, wherein the ~~second remote distribution node includes a~~ second multiplexer/demultiplexer is configured to receive a second subset of the wavelength channels in the first composite optical signal from the first remote distribution node and to send a second subset of wavelength channels from the second wavelength band to the first remote distribution node.

6. (Currently Amended) ~~The WDM-PON of claim 1,~~ A wavelength division multiplexing passive optical network (WDM-PON) for performing bi-directional communication, the WDM-PON comprising:

at least two remote distribution nodes including a first remote distribution node and a second remote distribution node between a central office and a plurality of optical network units, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node and the second remote

distribution node are connected to each other sequentially, wherein the first remote distribution node has an optical interleaver configured to couple a first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, and wherein the first remote distribution node is configured to connect to the second remote distribution node coupled to at least two optical network units, wherein each of the first remote distribution node and the second remote distribution node are configured to separate at least one wavelength channel from the first composite optical signal distributed through that remote distribution node, wherein the ~~first remote distribution node has an~~ optical interleaver is configured to split the first composite optical signal in a first wavelength band into a first portion consisting of odd numbered wavelength channels and a second portion consisting of ~~odd~~ even numbered wavelength channels.

7. (Previously Presented) The WDM-PON of claim 6, wherein the optical interleaver is also configured to create the second composite optical signal in a second wavelength band from a combination of a first portion of wavelength channels in the second wavelength band and a second portion of wavelength channels in the second wavelength band.

8. (Currently Amended) The WDM-PON of claim [[1]] 6, wherein the first direction is a downstream direction from the central office, and the second direction is upstream direction to the central office, and wherein the ~~first remote distribution node includes an~~ optical interleaver is configured to receive the first composite optical signal that travels in the downstream direction

from the central office, configured to divide the first composite optical signal into odd wavelength channel signals and even wavelength channel signals in order to output the odd and even wavelength signals to corresponding multiplexer/demultiplexers, and configured to receive the odd and even wavelength channel signals from the corresponding multiplexer/demultiplexers in order to combine the odd wavelength channel signals with the even wavelength channel signals.

9. (Previously Presented) The WDM-PON of claim 6, wherein the

second remote distribution node includes a first multiplexer/demultiplexer to receive the odd numbered wavelength channels from the first remote distribution node and to send the first portion of the wavelength channels in a second wavelength band to the first remote distribution node.

10. (Previously Presented) The WDM-PON of claim 9, wherein the second remote distribution node includes a second multiplexer/demultiplexer to receive the even numbered wavelength channels of the first wavelength band from the first remote distribution node and to send a portion of the second wavelength band to the first remote distribution node.

11. (Currently Amended) A wavelength division multiplexing passive optical network (WDM-PON) for performing bi-directional communication, the WDM-PON comprising:
at least two remote distribution nodes including a first remote distribution node and a second remote distribution node between a central office and a plurality of optical network units, each of the first remote distribution node and the second remote distribution node is located in a

physically separate location, wherein the first remote distribution node and the second remote distribution node are connected to each other sequentially, wherein the first remote distribution node has a plurality of band splitting filters, and a first multiplexer/demultiplexer and a second multiplexer/demultiplexer coupled to the plurality of band splitting filters, wherein the first remote distribution node is configured to couple a first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, and wherein the first remote distribution node is configured to connect to the second remote distribution node coupled to at least two optical network units, wherein each of the first remote distribution node and the second remote distribution node are configured to separate at least one wavelength channel from the first composite optical signal distributed through that remote distribution node~~The WDM-PON of claim 1~~, wherein the first remote distribution node has ~~a~~ the first multiplexer/demultiplexer coupled to at least two band splitting filters configured to split the first composite optical signal that includes all of the wavelength channels in a first wavelength band into a first subset of wavelength channels and a second subset of wavelength channels.

12. (Previously Presented) The WDM-PON of claim 11, wherein the

second remote distribution node includes a first multiplexer/demultiplexer to receive the first subset of wavelength channels from the first remote distribution node, a second multiplexer/demultiplexer to receive the second subset of wavelength channels from the first remote distribution node.

13. (Previously Presented) The WDM-PON of claim 12, wherein the second remote distribution node is configured to send a first through fourth portions of the wavelength channels in a second wavelength band to the second multiplexer/demultiplexer in the first remote distribution node via the band splitting filters, wherein the second multiplexer/demultiplexer is configured to combine the wavelength channels from the first through the fourth portions.

14. (Previously Presented) The WDM-PON of claim 11, wherein the at least one band splitting filter is further configured to separate the first composite optical signal and the second composite optical signal.

15. (Currently Amended) The WDM-PON of claim 1, wherein the ~~first remote distribution node includes a first multiplexer/demultiplexer and a second remote distribution node includes~~at least one filter is an add drop module~~, wherein~~comprising a first drop module that is configured to remove a wavelength channel from the first composite optical signal that includes all of the wavelength channels and the ~~first~~ multiplexer/demultiplexer is configured distribute at least two of the wavelength channels in the first composite optical signal.

16. (Currently Amended) The WDM-PON of claim 1, ~~further comprising:~~wherein the at least two filters comprises

at least two add/drop modules coupled to ~~the first optical cable from the central office to~~ the ~~first~~ third remote distribution node ~~containing a first~~comprising the multiplexer/demultiplexer, wherein the add/drop modules to remove wavelength channels from the first composite optical signal prior to the ~~first~~ multiplexer/demultiplexer.

17. (Currently Amended) A method, comprising:

separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band in a transmission path between a central office and ~~a most distant optical network unit~~a plurality of optical network units into at least three smaller groups consisting of subsets of the wavelength channels; and

generating the at least three smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least three times by a first remote distribution node connected sequentially to a second remote distribution node which is connected sequentially to a third remote distribution node via at least one ~~band-splitting~~ filter that is configured to couple the first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, wherein the second remote distribution node comprises at least two filters coupled to at least two optical network units, and the third remote distribution node comprises a multiplexer/demultiplexer.

18. (Currently Amended) A method, comprising:

separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band in a transmission path between a central office and a plurality of optical network units into at least two smaller groups consisting of subsets of the wavelength channels;

generating the at least two smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least two times by a first remote distribution node connected sequentially to a second remote distribution node, wherein the first remote distribution node has an optical interleaver that is configured to couple the first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction; and~~The method of claim 17, further comprising:~~

separating the first composite optical signal into a first subset that includes even numbered wavelength channels and a second subset that includes odd numbered wavelength channels by the optical interleaver.

19. (Currently Amended) The method of claim 17, further comprising:

combining at least two optical signals in a second wavelength band along the transmission path, each optical signal with at least one wavelength channel, wherein the second composite optical signal ~~travels in an opposite direction of the first composite optical signal and~~ occupies a different wavelength band than the first composite optical signal.

20. (Currently Amended) An apparatus, comprising:

a first optical network unit including an optical receiver and an optical transmitter; and

means for separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band into at least three smaller groups consisting of subsets of the wavelength channels in a transmission path between a central office and a ~~first~~ plurality of

optical network ~~unit~~units, wherein the first composite optical signal is sequentially separated along the transmission path at least three times, wherein the means for separating includes a first remote distribution node connected sequentially to a second remote distribution node which is connected sequentially to a third distribution node via at least one ~~band-splitting~~ filter to generate the at least three smaller groups consisting of subsets of the wavelength channels, wherein the at least one ~~band-splitting~~ filter is configured to couple the first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal is transmitted on the first optical cable in a first direction, and the second composite optical signal is transmitted on the first optical cable in a second direction opposite the first direction, wherein the second remote distribution node comprises at least two filters coupled to at least two optical network units, and the third remote distribution node comprises a multiplexer/demultiplexer.

21. (Currently Amended) An apparatus, comprising:

means for separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band in a transmission path between a central office and a plurality of optical network units into at least two smaller groups consisting of subsets of the wavelength channels;

means for generating the at least two smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least two times by a first remote distribution node connected sequentially to a second remote distribution node, wherein the first remote distribution node has an optical interleaver that is configured to couple the first composite optical signal and a second composite

optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction; and ~~The apparatus of claim 20, further comprising:~~

means for separating the composite optical signal into a first subset that includes even numbered wavelength channels and a second subset that includes odd numbered wavelength channels, wherein the means for separating includes the optical interleaver.

22. (Currently Amended) The apparatus of claim 20, further comprising:

means for combining at least two optical signals in a second wavelength band along the transmission path, each optical signal with at least one wavelength channels, wherein ~~a~~ the second composite optical signal ~~is transmitted in an opposite direction of the first composite optical signal and~~ has a different wavelength band than the first composite optical signal.